

A² 616 (Amended) The process of claim 3 wherein the temperature is maintained within a range of 15-37°C during somatic embryo germination.

A³ 12. (Amended) The process of claim 53 wherein the nutrient solutions are applied at intervals within a range of 1 minute to 24 hrs.

13. (Amended) The process of claim 53 wherein the nutrient solutions are applied at intervals within the range of 1 to 7 days.

14. (Amended) The process of claim 53 wherein the nutrient solutions are applied for a period of time ranging from 3 to 8 weeks.

15. (Amended) The process according to claim 53 wherein the somatic embryo is obtained from an angiosperm species.

16. (Amended) The process according to claim 53 wherein the somatic embryo is obtained from a gymnosperm species.

A⁴ 18. (Amended) The process according to claim 53 wherein the solid phase of the three-phase substrate is selected from the group consisting of peat, sawdust, bark chips, wood chips, compost, moss, perlite, vermiculite, pumice, grit, sand, soil, cellulosic fibres of plant origin, extruded foams, extruded fibres, and chemically expanded foams.

19. (Amended) The process according to claim 53 wherein the solid phase of the three-phase substrate is a mixture of substrates selected from the group consisting of peat, sawdust, bark chips, wood chips, compost, moss, perlite, vermiculite, pumice, grit, sand, soil, cellulosic fibres of plant origin, extruded foams, extruded fibres, and chemically expanded foams.

20. (Amended) The process according to claim 53, wherein the three-phase substrate contains a wetting agent.

A⁵ 22. (Amended) The process according to claim 53 wherein the moisture content of the three-phase substrate is adjusted with water to a range of 60-85% prior to receiving a somatic embryo.

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23. (Amended) The process according to claim 53 wherein the moisture content of the three-phase substrate is adjusted with a nutrient solution to a range of 60-85% prior to receiving a somatic embryo.

24. (Amended) The process according to claim 53 wherein at least one fungicide to control plant pathogens is incorporated into the three-phase growth substrate.

25. (Amended) The process according to claim 53 wherein at least one fungicide to control plant pathogens is applied in liquid form to the three-phase substrate.

26. (Amended) The process according to claim 53 wherein at least one fungicide to control plant pathogens is applied in aerosol form to the three-phase substrate.

27. (Amended) The process according to claim 53 wherein at least one insecticide to control plant pests is incorporated into the three-phase growth substrate.

28. (Amended) The process according to claim 53 wherein at least one insecticide to control plant pests is applied in liquid form to the three-phase substrate.

29. (Amended) The process according to claim 53 wherein at least one insecticide to control plant pests is applied in aerosol form to the three-phase substrate.

30. (Amended) The process according to claim 53 wherein the three-phase substrate is contained within a horticultural container.

34. (Amended) The process according to claim 53 wherein the somatic embryo placed on or within the three-phase substrate, is covered with a material selected from the group consisting of peat, sawdust, bark chips, wood chips, compost, moss, perlite, vermiculite, pumice, grit, sand, soil, cellulose fibres of plant origin, extruded foams, extruded fibres, and chemically expanded foams.

35. (Amended) The process according to claim 53 wherein the somatic embryo

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is placed on or within the three-phase substrate with seeding equipment.

39. (Amended) The process according to claim 53 wherein the nutrient solutions applied to the surface of the three-phase substrate containing the somatic embryo, are delivered as microdroplets through a process selected from the group consisting of misting, fogging, and humidification.

40. (Amended) The process according to claim 39 wherein the nutrient solutions applied to the surface of the three-phase substrate contain nutrients selected from the group consisting of sugars, inorganic minerals, micronutrients, amino acids, vitamins, and plant growth regulators.

41. (Amended) The process according to claim 39 wherein the nutrient solutions contain sugars selected from the group consisting of monosaccharides and polysaccharides.

42. (Amended) The process according to claim 39 wherein the nutrient solutions contain sugars selected from the group consisting of glucose, fructose, mannose, maltose, and sucrose.

43. (Amended) The process according to claim 53 wherein only water is applied as microdroplets to the surface of the three-phase substrate for a period of 18-36 hours after placing the somatic embryo on or within the surface of the three-phase substrate, after which time, nutrient solutions are also applied as microdroplets.

45. (Amended) A process of growing a somatic embryo into a seedling, which comprises maintaining a somatic embryo germinated according to the process of claim 53 in a three-phase substrate, and growing said germinated embryo to develop the germinated embryo into a seedling.

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39. (Amended) The process of claim 45 wherein no nutrient solution is applied as microdroplets to said embryo after said embryo has become autotrophic.

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38. (Amended) The process of claim 45 wherein said embryo becomes autotrophic within a period of time in the range of 3 to 8 weeks.

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53. (Amended) A process of germinating somatic embryos, which comprises:

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- (a) placing a somatic plant embryo on or within a non-sterile three-phase substrate, the phases comprising solid, liquid and gas phases,
 - (b) placing the substrate containing the somatic embryo into an environmentally-controlled plant-growing environment in which at least one environmental factor may be controlled and manipulated,
 - (c) manipulating at least one factor to enable and facilitate germination of the somatic embryo, and
 - (d) applying nutrient solutions at regular intervals during the period of somatic embryo germination for a period of time such that somatic embryo imbibition, germination, growth and development occur.

57. (Amended) A process for germinating somatic embryos, said process comprising the steps of:

- (a) placing a somatic embryo on or within a three-phase substrate, said phases comprising solid, liquid and gas phases,
- (b) placing said substrate containing a somatic embryo into an environmentally-controlled plant-growing environment in which at least one environmental factor may be controlled and manipulated,
- (c) manipulating said at least one factor to enable and facilitate germination of the somatic embryo, and
- (d) applying nutrient solutions at regular intervals during somatic embryo germination by drenching or irrigating the three-phase growing media, for a period of time such that somatic embryo imbibition, germination, growth and development occur. --

A Marked-up copy of the amended claims showing the changes made is attached.

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